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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|----------------------------------------------------------------------------|-------------|----------------------|---------------------|------------------|
| 10/059,311 | 01/31/2002 | Kyung Chul Woo | 3449-0190P | 5488 |
| 2292 | 7590 | 01/20/2006 | | EXAMINER |
| BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747 | | | | JAGAN, MIRELLYS |
| | | | ART UNIT | PAPER NUMBER |
| | | | | 2859 |

DATE MAILED: 01/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|-------------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/059,311 | WOO ET AL. <i>AM</i> | |
| | Examiner | Art Unit | |
| | Mirellys Jagan | 2859 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) Responsive to communication(s) filed on 08 November 2005.

2a) This action is FINAL. 2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) Claim(s) 1-6 and 8-11 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) Claim(s) _____ is/are allowed.

6) Claim(s) 1-6 and 8-11 is/are rejected.

7) Claim(s) _____ is/are objected to.

8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on _____ is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) All b) Some * c) None of:
1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. _____.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) Notice of References Cited (PTO-892)
2) Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ .
4) Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ .
5) Notice of Informal Patent Application (PTO-152)
6) Other: ____ .

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,072,473 to Thuruta et al [hereinafter Thuruta] in view of Japanese Patent 62192196 to Yamamoto et al [hereinafter Yamamoto].

Thuruta discloses a washing machine having:

a water gauge chamber (2b) extending along an outer side of an outer edge of an outer tub of the washing machine; and

a hollow chamber cap that is located at a bottom edge of the water gauge chamber to close an opened bottom portion of the gauge chamber;

wherein an entire surface of the cap that is exposed to the water in the chamber defines an upper surface of the cap, the entire upper surface being a flat disk-shaped surface, and a hollow space of the cap faces downward and the water in the gauge chamber is above the cap; and the lower portion of the cylindrical outer tub having the claimed shape, i.e., a truncated conical-shaped lower portion tapered inwardly toward a bottom of the outer tub such that the cap is

separated from the cylindrical upper portion by a vertical length of the lower portion (see figure 1).

Thuruta does not disclose locating a temperature sensor having signal lines in a seating portion of the hollow cap for measuring the temperature of the water in the chamber without the sensor directly contacting the water.

Yamamoto discloses a washing machine having a water gauge chamber extending along an outer side of an outer edge of an outer tub of the washing machine; and a hollow chamber cap that is located at a bottom edge of the water gauge chamber to close an opened bottom portion of the gauge chamber. A temperature sensor having signal lines is located in the hollow cap for measuring the temperature of the water in the chamber without the sensor directly contacting the water. Yamamoto teaches that this location is a desirable location for placing the temperature sensor since it allows the temperature of the water to be measured in order to control the water temperature and wash cycle automatically.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the machine of Thuruta by adding a temperature sensor having signal lines to a seating portion of the hollow cap, as taught by Yamamoto, in order to measure the temperature of the water and control the water temperature and wash cycle automatically.

3. Claims 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thuruta and Yamamoto, as applied to claims 1, 3, and 9 above, and further in view of U.S. Patent 5,743,646 to O'Connell et al [hereinafter O'Connell].

Thuruta and Yamamoto disclose a machine having all of the limitations of claims 2 and 4, as stated above in paragraph 2, except for the cap having a heat insulating material inserted into its hollow space to maintain the sensor with in the cap and provide an adiabatic effect.

O'Connell discloses a temperature sensor for measuring temperature within a chamber. The temperature sensor is in a hollow probe that is filled with a heat insulating material. O'Connell teaches that it is beneficial to fill the probe with the material in order to maintain the sensor in place and provide efficient heat transfer (adiabatic effect) for faster response of the sensor (see column 3, lines 18-34).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the machine of Thuruta and Yamamoto by filling the hollow interior of the cap with a heat insulating material, as taught by O'Connell, in order to maintain the sensor in place and provide efficient heat transfer for faster response of the sensor.

4. Claims 8 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thuruta and Yamamoto.

Thuruta and Yamamoto disclose a sensor having all of the limitations of claims 8 and 10, as stated above in paragraph 2, but are silent as to the manner in which the cap is attached to the chamber and the particular material of the cap, and therefore does not disclose the cap being welded to the bottom edge of the chamber, or the cap being made of a plastic material.

Referring to claim 8, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the sensor disclosed by Thuruta and Yamamoto by

welding the cap to the chamber in order to more securely seal the opening at the bottom of the chamber and prevent water from leaking out.

Referring to claim 10, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the sensor disclosed by Thuruta and Yamamoto by making the cap of a plastic material in order to use a material that is resistant to corrosive effects of the water, and since the particular type of material claimed by applicant is considered to be the use of a “preferred” or “optimum” material out of a plurality of well known materials that a person having ordinary skill in the art at the time the invention was made would have been able to provide based on the intended use of applicant’s apparatus, i.e., suitability for the intended use of applicant’s apparatus. See *In re Leshin*, 125 USPQ 416 (CCPA 1960), where the courts held that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious.

5. Claims 5 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto.

Yamamoto discloses a temperature sensor comprising:

a water temperature measuring part (18) including a temperature sensor and signal lines for connecting the sensor to a circuit, and a cylindrical probe part of the cap containing the temperature measuring part therein and extending upward from the center of the cap to directly contact the water;

a water gauge chamber (14) extending along an outer side of an outer edge of an outer tub of a washing machine; and

a hollow chamber cap (17) that is located at a bottom edge of the water gauge chamber (see figures 2 and 3).

Yamamoto does not disclose the cap and the probe being made of two separate parts such that the probe extends through a hole in the upper surface of the cap to contact the water, and the probe being made of a material different from the cap.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the sensor disclosed by Yamamoto by making the cap of two separate parts such that the probe extends through a hole in the cap to contact the water in order to allow the length of the probe within the water to be adjustable, thereby maintaining the sensor within the water level of a particular machine, and since it has been held that the mere fact that a given structure is integral does not preclude its consisting of various elements. See *Nerwin v. Erlichman*, 168 USPQ 177, 179 (PTO Bd. of Int.1969).

Furthermore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the sensor disclosed by Yamamoto by making the cap of a plastic material in order to use a material that is resistant to corrosive effects of the water, and to make the probe of a metallic material in order to conduct heat to the temperature sensor to measure the temperature of the water (two different materials), and since the particular type of material claimed by applicant is considered to be the use of a "preferred" or "optimum" material out of a plurality of well known materials that a person having ordinary skill in the art at the time the invention was made would have been able to provide based on the intended use of applicant's apparatus, i.e., suitability for the intended use of applicant's apparatus. See *In re Leshin*, 125

USPQ 416 (CCPA 1960), where the courts held that a selection of a material on the basis of suitability for intended use of an apparatus would be entirely obvious.

6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto in view of O'Connell.

Yamamoto discloses a sensor having all of the limitations of claim 6, as stated above in paragraph 5, except for the cap having a heat insulating material inserted into its hollow space to maintain the sensor with in the cap and provide an adiabatic effect.

O'Connell discloses a temperature sensor for measuring temperature within a chamber. The temperature sensor is in a hollow probe that is filled with a heat insulating material. O'Connell teaches that it is beneficial to fill the probe with the material in order to maintain the sensor in place and provide efficient heat transfer (adiabatic effect) for faster response of the sensor (see column 3, lines 18-34).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the sensor of Yamamoto by filling the hollow interior of the cap with a heat insulating material, as taught by O'Connell, in order to maintain the sensor in place and provide efficient heat transfer for faster response of the sensor.

Response to Arguments

7. Applicant's arguments with respect to claims 1-6 and 8-11 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references disclose a water temperature sensor housing for a washing machine:

U.S Patent 5,133,200 to Tanaka et al

U.S. Patent Application Publication 2005/0081572 to Park et al

U.S. Patent Application Publication 2004/0206132 to Lyu

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mirellys Jagan whose telephone number is 571-272-2247. The examiner can normally be reached on Monday-Friday from 11AM to 4PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ
January 17, 2006


Diego Gutierrez
Supervisory Patent Examiner
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